United States
Department of
Agriculture

Animal and Plant
Health Inspection
Service

Plant Protection
and Quarantine

APHIS 81-40
July 1982

PESTS NOT KNOWN TO OCCUR IN THE UNITED STATES OR OF LIMITED DISTRIBUTION

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Preface

This first APHIS 81 issue produced by the Biological Assessment Support Staff (BASS) continues, beginning with number 12, the series of Pests Not Known To Occur in the United States or of Limited Distribution (PNKTO) articles. This series is intended to give facts about exotic pests as an aid to assigning priorities, in detection, control, and containment strategies and as a guide to available literature. The first 11 were published in the "Cooperative Plant Pest Report" (CPPR) which ceased publication in October 1980. These first 11 will be revised and reissued in this format at a later date.

This series had as its forerunner the "Insects Not Known To Occur in the United States" (INKTO) series published in the "Cooperative Economic Insect Report" (CEIR). There were 198 INKTO articles issued before the name of the CEIR was changed and the scope enlarged to include all classes of plant pests. Some of these insect species will be included in the PNKTO series as they are revised according to need.

The scope and range of species treated in the PNKTO series were also widened and the concept of "Limited Distribution" added to allow the inclusion of articles about pests that became established and subsequently eradicated to be included without concern for whether or not the species was actually exotic. Also included in this concept are pests that are so limited in distribution that they may be treated as though they were exotic.

Included in this issue are the first two groups of pests, 12 through 17 and 18 through 23. Articles will be routinely arranged to allow for as much complementing of information within the group as is practical from the range of current pest articles.

PESTS NOT KNOWN TO OCCUR IN THE UNITED STATES OR OF LIMITED DISTRIBUTION, NO. 12: CROTON WHITEFLY

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Order: Family — Homoptera: Aleyrodidae

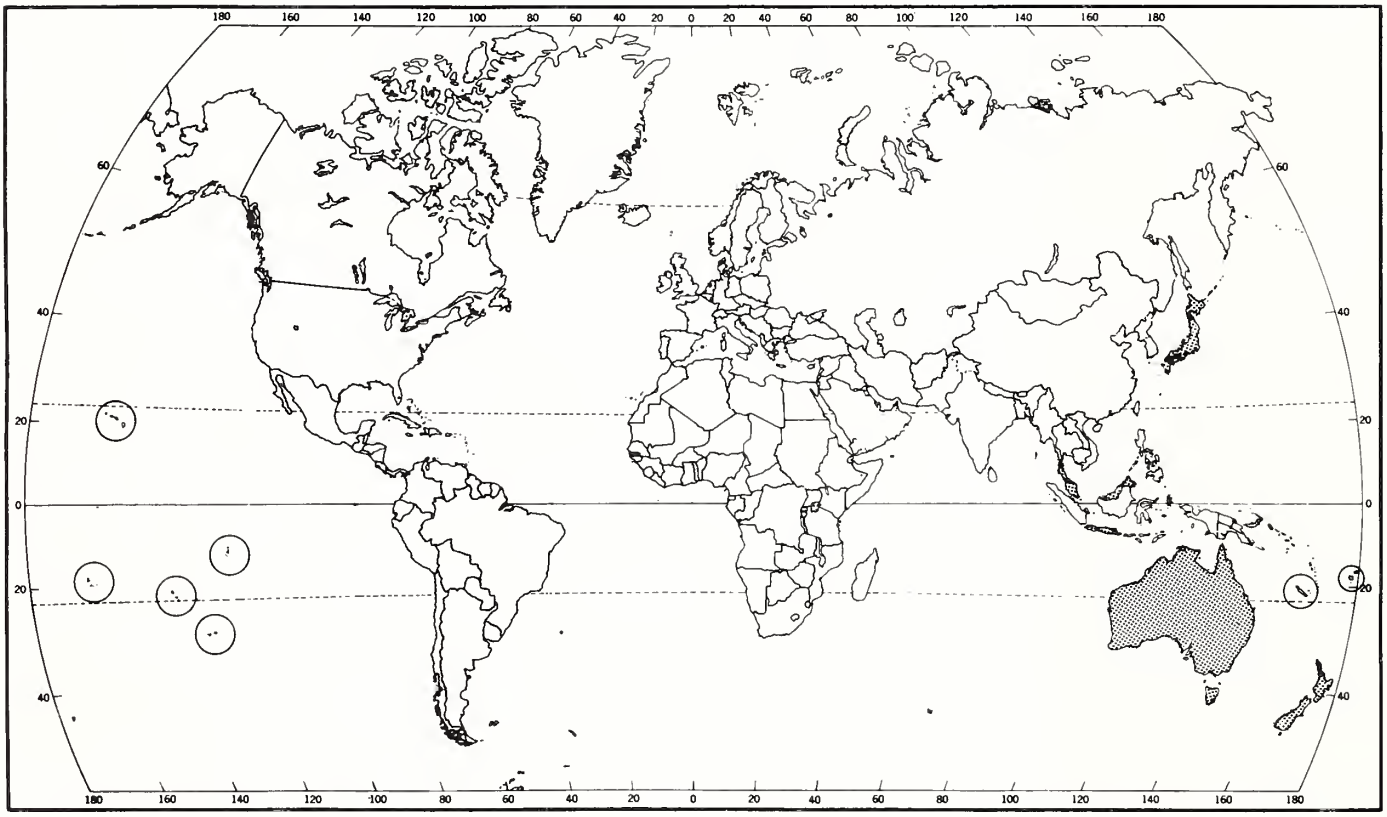
Pest — CROTON WHITEFLY
Orchamoplatus mammaeferus (Quaintance and Baker)

Economic Importance — *Orchamoplatus mammaeferus* is one of the main pests of orange in Rarotonga, Cook Islands (Dumbleton 1954), and sometimes is a pest in New Caledonia (Fabres (letter)). In Hawaii, L. M. Nakahara (1979) observed no apparent damage but reported indirect problems by sooty mold fungi which blacken the plants and reduce their aesthetic value. The attractiveness of the plants is further lessened by large populations of immatures on the leaves. Large numbers of winged adults can also be a nuisance.

Hosts — The host list includes: *Alyxia olivaeformis*, *Artocarpus altilis* (breadfruit), *Barringtonia asiatica*, *Begonia* spp. (begonias), *Callophyllum inophyllum* (Indian laurel), *Citrus* spp., *Citrus aurantifolia* (lime), *Citrus aurantium* (sour orange), *Citrus grandis* (shaddock), *Citrus limon* (lemon), *Citrus medica* (citron), *Citrus paradisi* (grapefruit), *Citrus reticulata* (mandarin orange), *Citris sinensis* (sweet orange), *Codiaeum variegatum* (garden croton), *Eugenia uniflora* (Surinam cherry), *Ficus* spp. (figs), *Harpullia hillii*, *Honalium acuminatum*, *Litchi chinensis* (litchi), *Macadamia integrifolia* (macadamia nut), *Mammea americana* (mammy apple), *Manilkara zapota* (sapodilla), *Ochrusia nakaiana*, *Pelea* spp., *Pimenta dioica* (allspice), *Plumeria* spp. (frangipani), *Psidium cattleianum* (strawberry guava), *Spondias dulcis* (golden apple), *Syzygium cumini* (Java plum), and *Syzygium malaccense* (Malay apple) (Cohic 1959, Mound and Halsey 1978, Nakahara 1979, Reboul (letter), Russell 1958).

General Distribution — Hawaii (Maui and Oahu), Australia, Cook Islands (Aitutaki, Rarotonga), Fiji, Indonesia (Java), Japan, Malaysia, Marquesas Islands, New Caledonia, New Zealand, Samoa, Singapore, Society Islands (Bora Bora, Moorea, and Tahiti), and Tuamotu Islands (Makatea) (Cohic 1959, Dumbleton 1954, Russell 1958).

In recent years, O. mammaeferus has been intercepted by agricultural quarantine officers principally at Honolulu, Hawaii, and California ports. It was found on Citrus and Codiaeum leaves from American Samoa, Australia, Cook Islands, Hawaii, and Tahiti. This species was first detected in Honolulu, Hawaii, in 1976 on Codiaeum, and subsequently has been found on other host plants and on the island of Maui (Nakahara 1980).



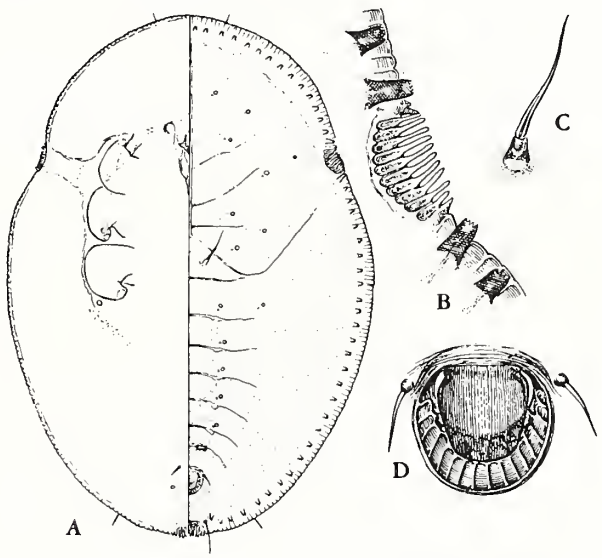
Orchamoplatus mammaeferus distribution map prepared by USDA, APHIS, PPQ, Biological Assessment Support Staff

Characters

Wax secretions colorless or yellowish, transparent, glassy, and completely covering larvae and pupae. Often waxes of individuals coalesce.

PUPAE (figs. A-D) - Oval, flat, and widest across metathorax. Pupae about 0.75-1.0 mm long, 0.5-0.7 mm wide; colorless or yellowish, and membranous. Tracheal pore area with teeth differentiated sharply from rest of weakly crenulated margin. Thoracic tracheal pore area not expanded into plate, and teeth not recessed into submargin. Single row of 40-47 submarginal glands around body. Cephalic setae absent from dorsum; pair of submedian setae on abdominal segment 1; caudal setae 80-100 microns (mu) long, and bases separated by about twice the length of submarginal gland. Vasiform orifice and operculum subcircular. Lingula shorter than operculum. Ventral minute spines less than 5 mu long, a sparse (Russell 1958).

(Figs. A-D)



O. mammaeferus: A. Dorsal and ventral halves of body; B. Thoracic tracheal pore area and adjacent derm; C. First abdominal seta; D. Vasiform orifice

ADULTS - Tiny, about 2 mm long, and covered with white, powdery wax.

Characteristic Damage

This whitefly infests the leaves in large numbers and lessens plant vigor by sucking sap. At times, the wax secretion of this pest virtually covers the lower surfaces of the leaves. Copius amounts of honeydew secreted by the immatures of this species coat the leaves, stems, and fruits. Sooty mold fungi that develop on this secretion interfere with photosynthesis and reduce the attractiveness of ornamental plants. Fruits coated with sooty mold fungi are unmarketable or reduced in value.

Detection Notes

1. Examine plants blackened with sooty mold fungi, with droplets of honeydew secretion, or with tiny, white winged adults. In heavy infestations, a swarm of adults will rise from the plants when the plants are shaken.

2. Examine the undersides of the leaves for characteristic glassy, transparent wax secretions, and pale or yellowish larvae and pupae.

3. Collect infested leaves and submit for identification. Do not submit adults without associated pupae because only the pupae of whiteflies can be determined to species.

Biology

O. mammaeferus lays pale yellow eggs in a circle, semicircle, or in an arc on the undersurfaces of young and tender leaves. Each circle or semicircle contains 30-60 eggs, which turn reddish brown and hatch in 8 days in May in Tahiti. During this time of the year, the life cycle is completed in 35 days (Cohic 1955). The oval larvae and pupae are evenly distributed on the undersurfaces of the leaves, and each individual is covered with a glassy, transparent wax secretion (figs. E-F) (Nakahara 1979) that usually coalesces with wax secretions produced by adjacent individuals. According to Cohic (1955), Codiaeum is the reservoir of this whitefly in Tahiti and elimination of Codiaeum bordering Citrus orchards will be useful.

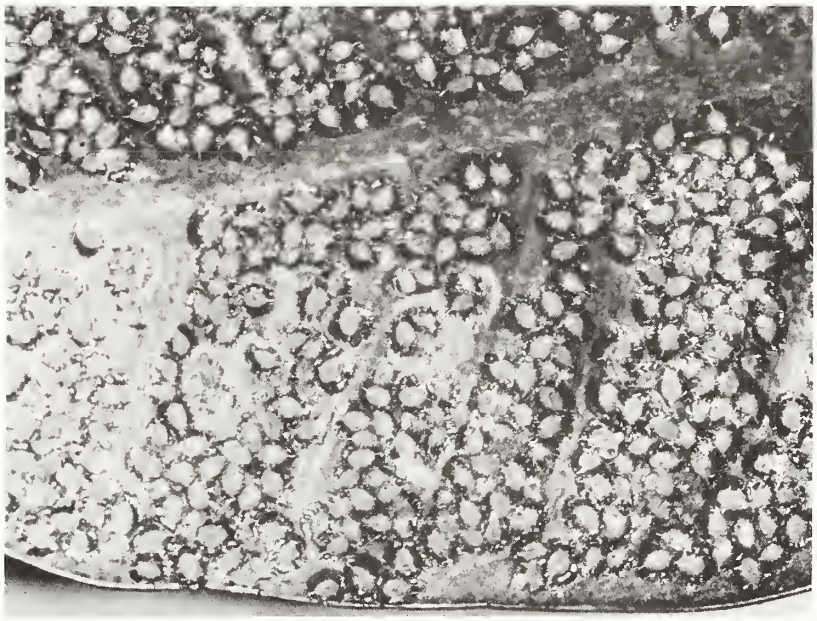
Natural Enemies

In Hawaii an Aphelinidae parasitoid, Encarsia sp., was found once. Two Coccinellidae predators, Serangium maculigerum Blackburn and Orcus chalybeus (Boisduval), were reported feeding on immatures. However, none of these species were effective as control agents. (Nakahara, personal communication).

Acknowledgment

The preparer thanks S. Higa and L. M. Nakahara, Hawaii Department of Agriculture, Honolulu, for the information and photographs and L. M. Russell, Systematic Entomology Laboratory, Beltsville, MD, for permission to use the illustrations.

(Fig. E)



O. mammaeferus: Pupae on undersurface of Codiaeum leaf (Courtesy of L. M. Nakahara)

(Fig. F)

O. mammaeferus: Pupae enlarged (Courtesy of L. M. Nakahara)

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